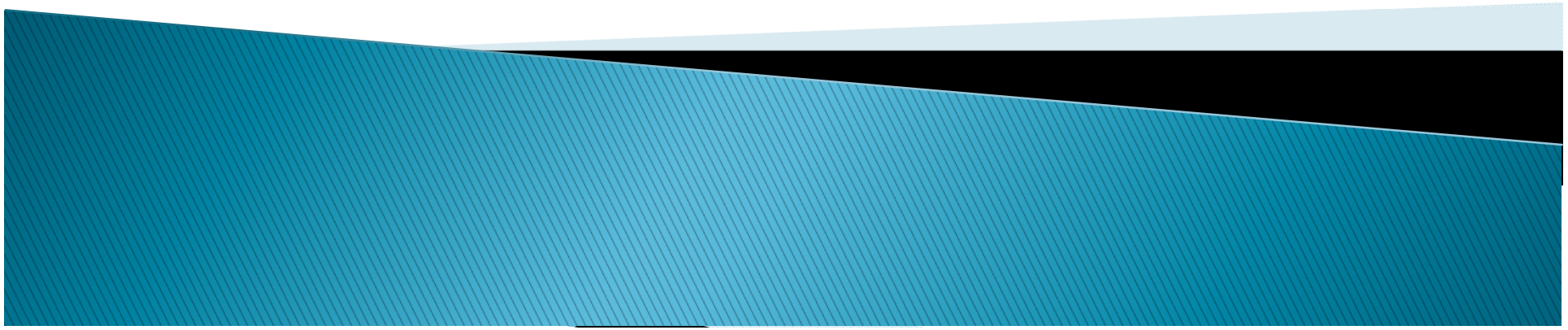
What is Economics All About ?

EE 211



A set of principles for understanding the economics of how individuals **make choices**

A set of principles for understanding how individual **choices interact**

A set of principles for understanding **economy-wide interactions**

Explain the importance of scarcity, choice, and opportunity cost, and they are illustrated by the production possibilities boundary.

Explain that all economies are mixed economies, having elements of free markets, tradition, and government intervention.

Distinguish between positive and normative statements in economics.

Explain how economists use models to help them think about the economy.

Describe the interaction between economic theories and empirical observation.

Describe several types of economic data, including time-series and cross-sectional data, and scatter diagrams.

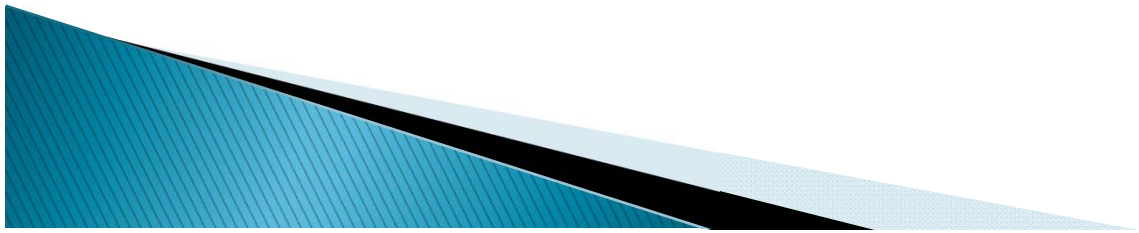
Explain how the slope of a relation between two variables, *X* and *Y*, is interpreted as the marginal response in *Y* to a unit change in *X*.

Individual Choice

- **Individual choice** is the decision by an individual of what to do, which necessarily involves a decision of what not to do.

Basic principles behind the individual choices:

1. Resources are scarce.
2. The real cost of something is what you must give up to get it.
3. “How much?” is a decision at the margin.
4. People usually take advantage of opportunities to make themselves better off.



Scarcity, Choice, and Opportunity Cost

Economics is the study of the use of scarce resources to satisfy unlimited human wants.

Resources

A society's resources are divided into land, labor, and capital.

Economists refer to resources as factors of production.

Outputs are goods (tangibles) or services (intangibles).

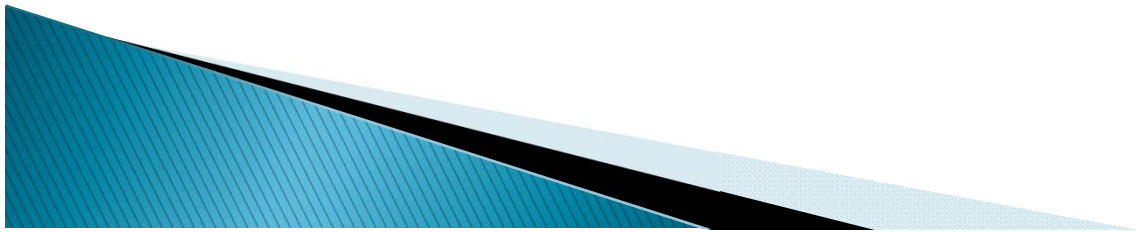
Resources are scarce

A **resource** is anything that can be used to produce something else.

- Ex.: Land, labor, capital

Resources are **scarce** – the quantity available isn't large enough to satisfy all productive uses.

- Ex.: Petroleum, lumber, intelligence, …



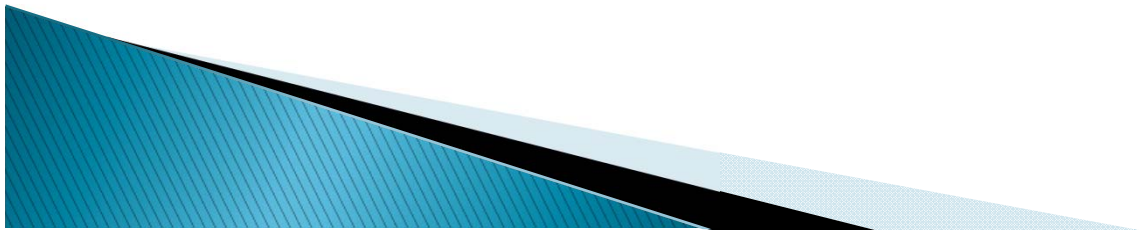
The real cost of something is what you must give up to get it

- The real cost of an item is its **opportunity cost**: what you must give up in order to get it.

- Opportunity cost is crucial to understanding individual choice:
  - Ex.: The cost of attending the economics class is what you must give up to be in the classroom during the lecture.

- Sleep? Watching TV? Rock climbing? Work?

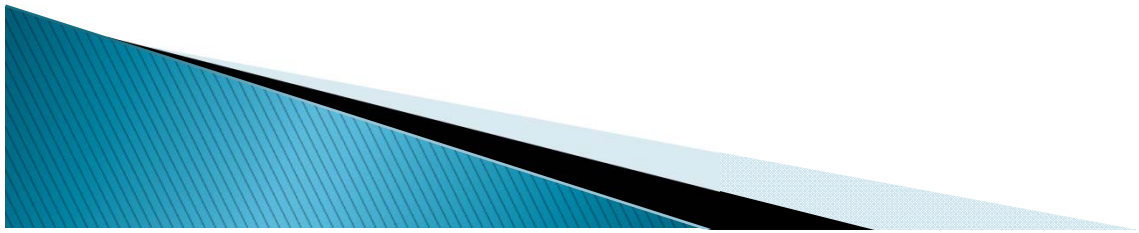
- *All* costs are ultimately opportunity costs.



“How much?” is a decision at the margin

- You make a **trade-off** when you compare the costs with the benefits of doing something.

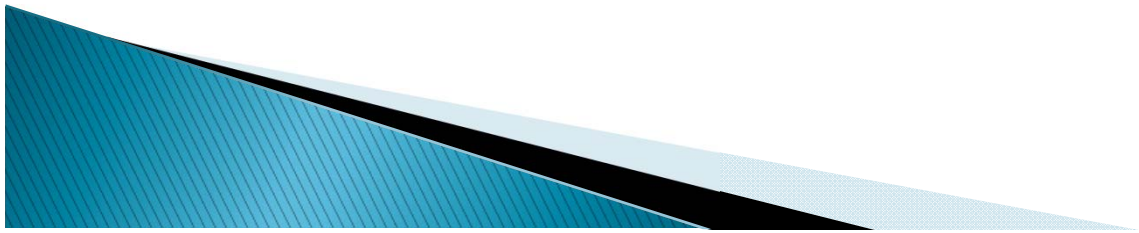
- Decisions about whether to do a bit more or a bit less of an activity are **marginal decisions.**



Marginal Analysis

- Making trade-offs *at the margin*: comparing the costs and benefits of doing a little bit more of an activity versus doing a little bit less.

- The study of such decisions is known as **marginal analysis.**
  - Ex.: Hiring one more worker, studying one more hour, eating one more cookie, buying one more CD…



People usually take advantage of opportunities to make themselves better off

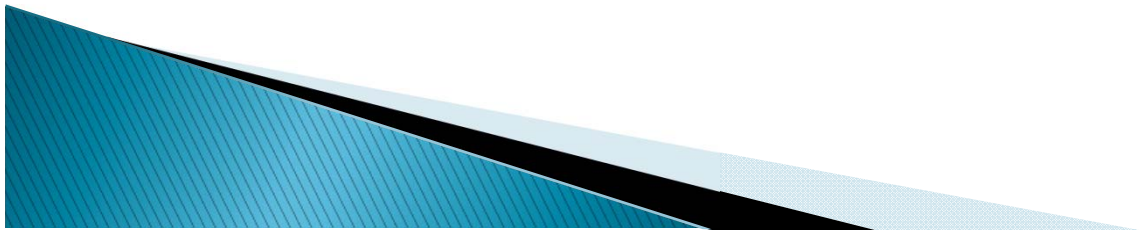
- An **incentive** is anything that offers rewards to people who change their behavior.
  - Ex.: Price of gasoline rises → people buy more fuel-efficient cars.
- There are more well-paid jobs available for college graduates with economics degrees →more students major in economics.
- People respond to these incentives.

Interaction: How Economies Work

Interaction of choices—my choices affect your choices, and vice versa—is a feature of most economic situations.

Principles that underlie the interaction of individual choices:

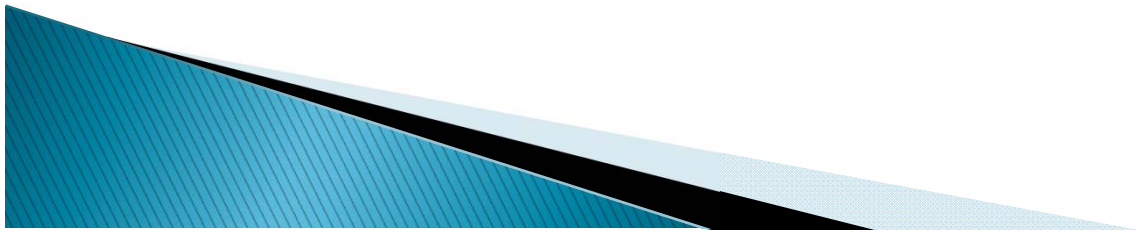
1. There are gains from trade.
2. Markets move toward equilibrium.
3. Resources should be used as efficiently as possible to achieve society's goals.
4. Markets usually lead to efficiency.
5. When markets don't achieve efficiency, government intervention can improve society's welfare.



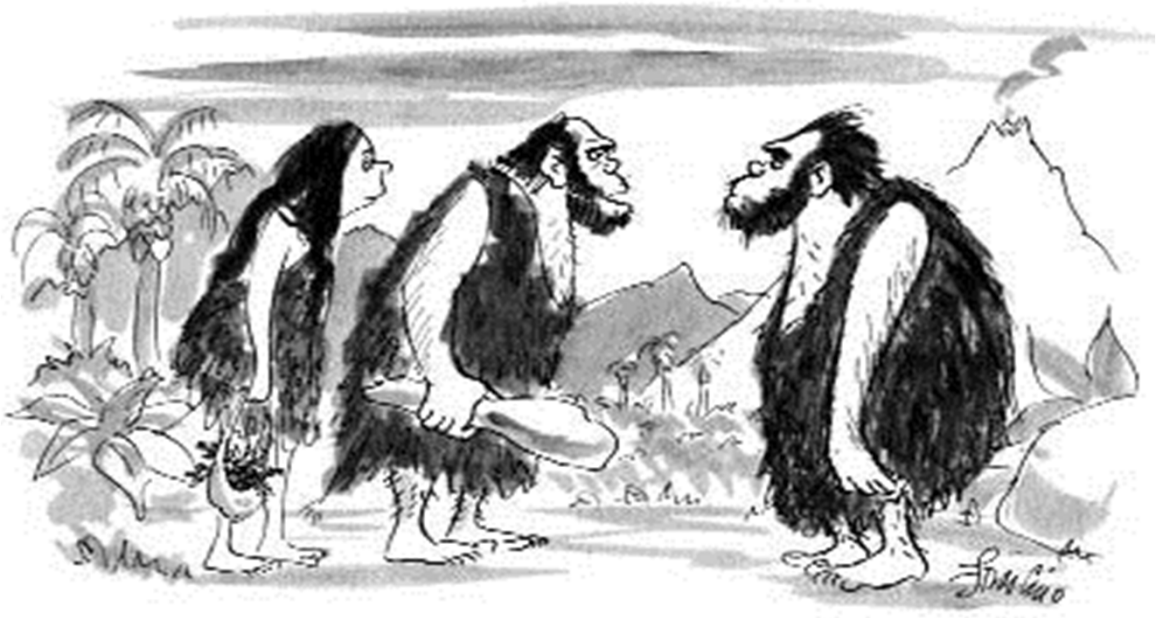
There are gains from trade

- In a market economy, individuals engage in **trade**: They provide goods and services to others and receive goods and services in return.

- There are **gains from trade**: people can get more of what they want through trade than they could if they tried to be self-sufficient.



This increase in output is due to **specialization**: each person specializes in the task that he or she is good at performing



"I hunt and she gathers – otherwise we couldn't make ends meet."

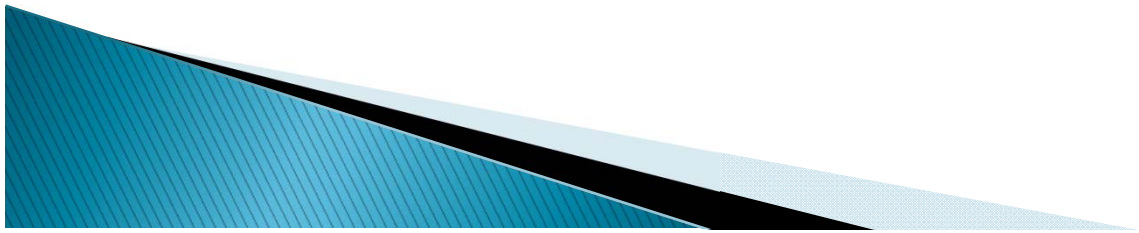
The economy, as a whole, can produce more when each person specializes in a task and trades with others.

Markets move toward equilibrium

- An economic situation is in **equilibrium** when no individual would be better off doing something different.

- Any time there is a change, the economy will move to a new equilibrium.

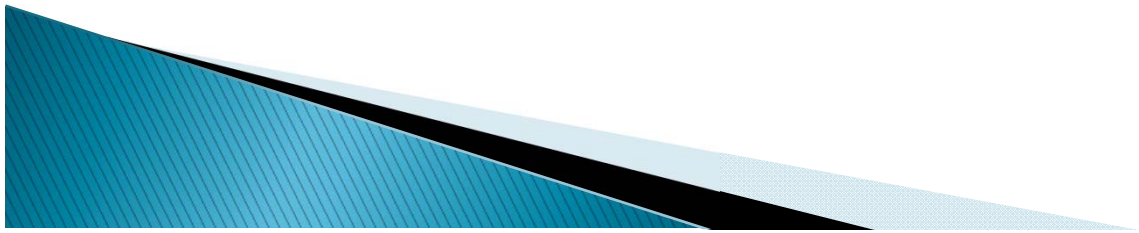
  - Ex.: What happens when a new checkout line opens at a busy supermarket?



Resources should be used as efficiently as possible to achieve society's goals

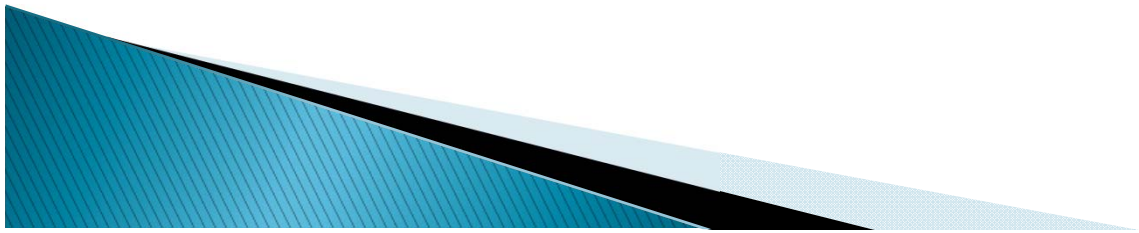
- An economy is **efficient** if it takes all opportunities to make some people better off without making other people worse off.
- Should economic policy makers always strive to achieve economic efficiency?

- **Equity** means that everyone gets his or her fair share. Since people can disagree about what's "fair," equity isn't as well-defined a concept as efficiency.



Efficiency

Efficiency means that the resources are organized so as to produce the largest possible amount of the goods and services that people want to purchase.

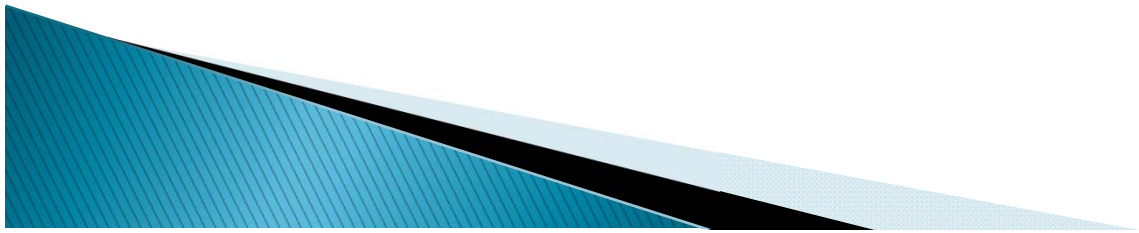


Efficiency vs. Equity

- Ex.: Handicapped-designated parking spaces in a busy parking lot

  A conflict between:

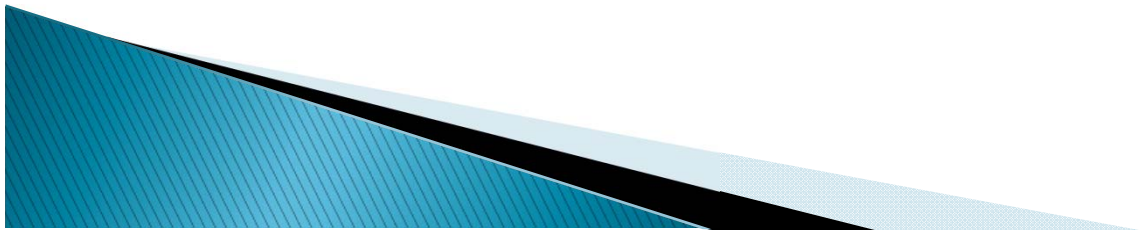
- ***equity***, making life "fairer" for handicapped people, and
- ***efficiency***, making sure that all opportunities to make people better off have been fully exploited by never letting parking spaces go unused.
- How far policy makers should go in promoting equity over efficiency?



Markets usually lead to efficiency

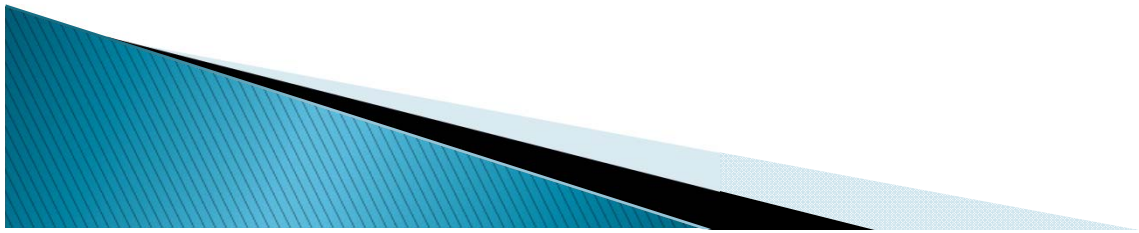
- The incentives built into a market economy already ensure that resources are usually put to good use.
- Opportunities to make people better off are not wasted.
- Exceptions: *market failure*, the individual pursuit
- of self-interest found in markets makes society worse off

→ the market outcome is inefficient.



When markets don't achieve efficiency

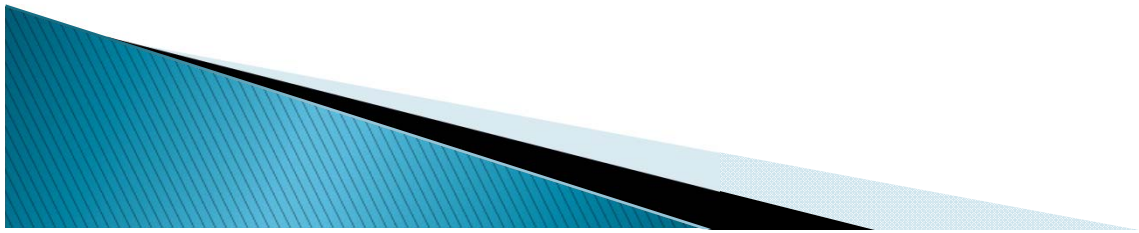
- Why do markets fail?
- Individual actions have *side effects* not taken into account by the market (externalities).
- One party prevents mutually beneficial trades from occurring in the attempt to capture a greater share of resources for itself.
- Some goods cannot be efficiently management by markets.



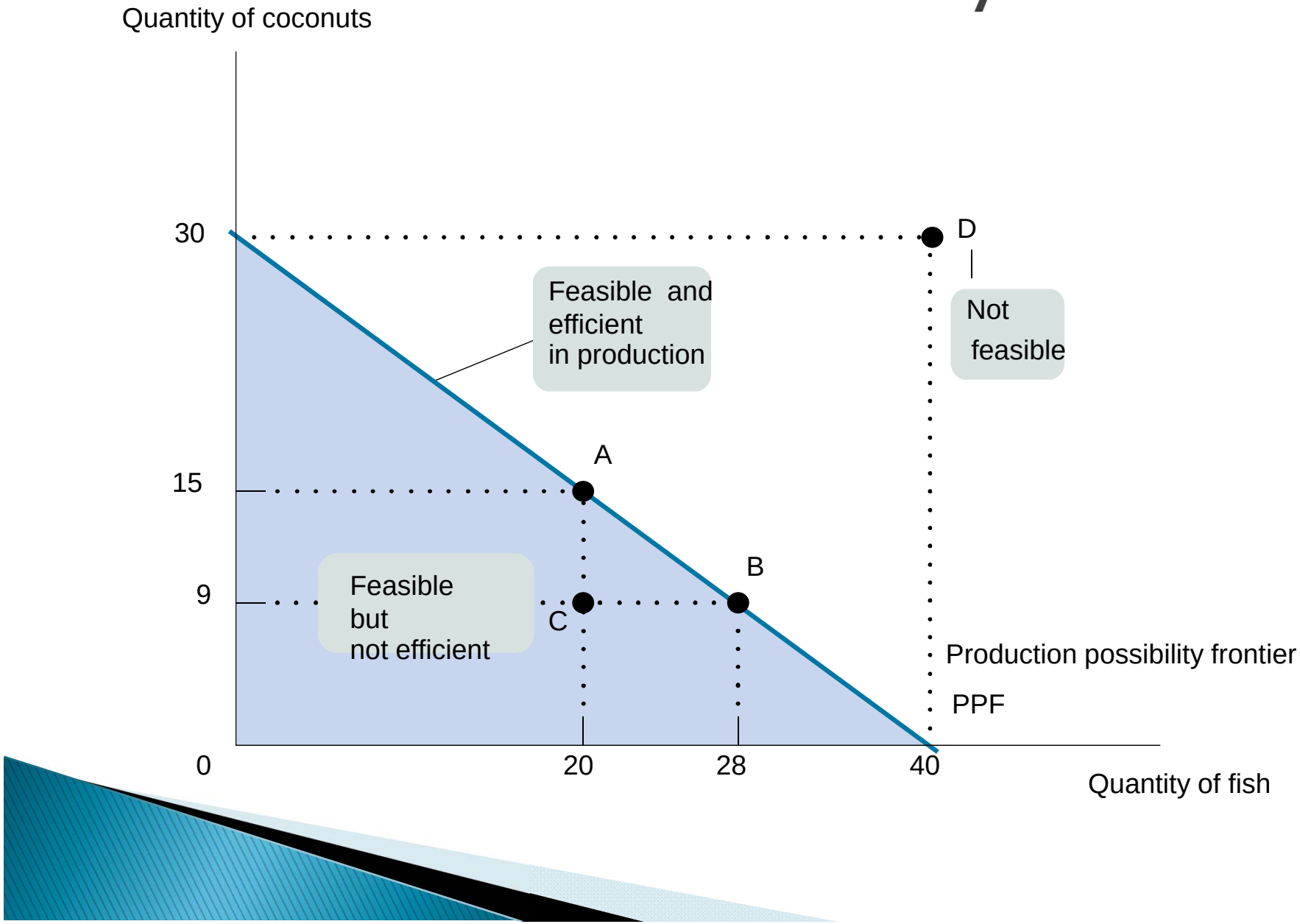
Trade-offs: The Production Possibility Frontier

- The **production possibility frontier (PPF)** illustrates the trade-offs facing an economy that produces only two goods. It shows the maximum quantity of one good that can be produced for any given production of the other.

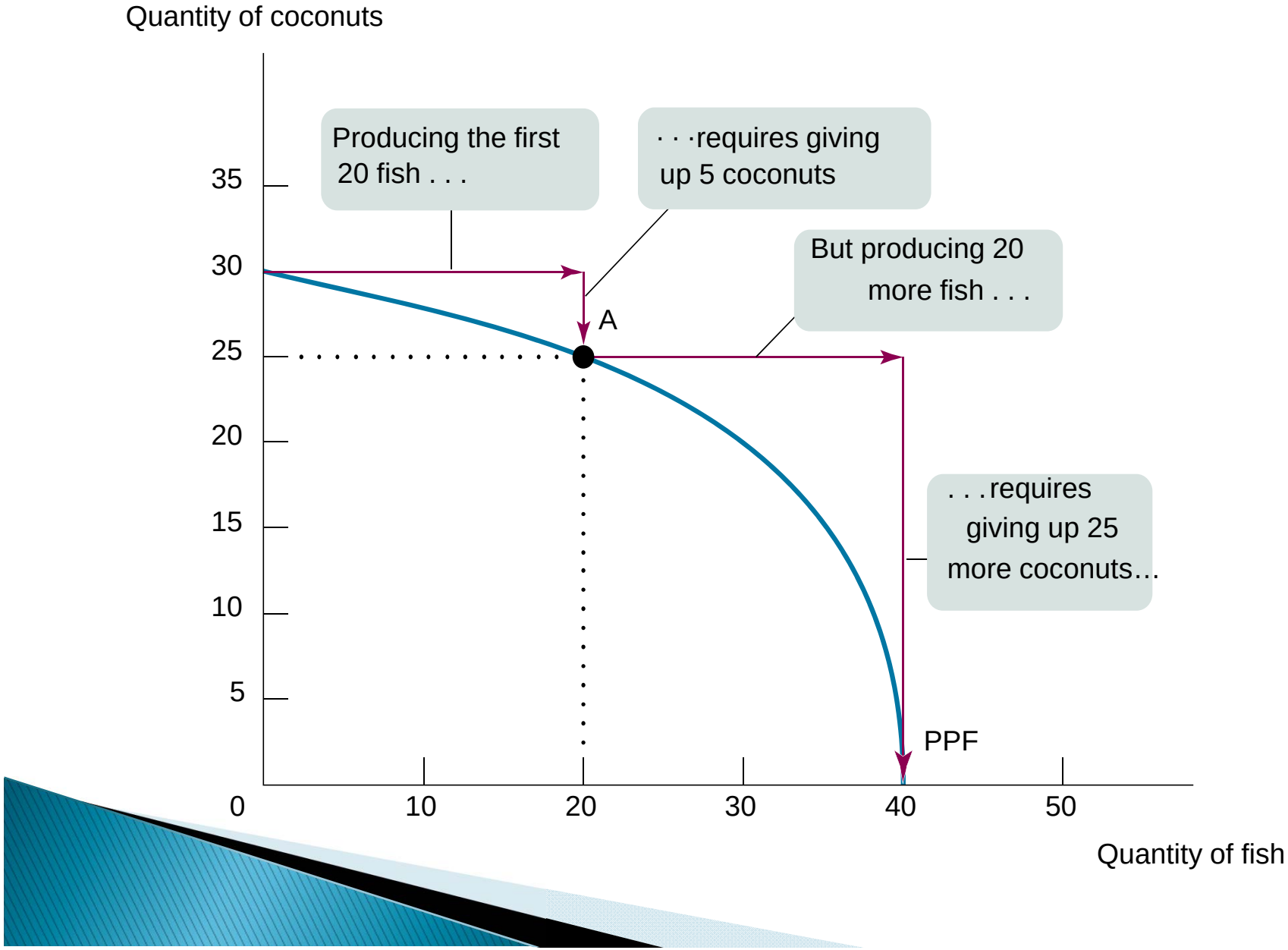
- The PPF improves our understanding of trade-offs by considering a simplified economy that produces only two goods by showing this trade-off graphically.



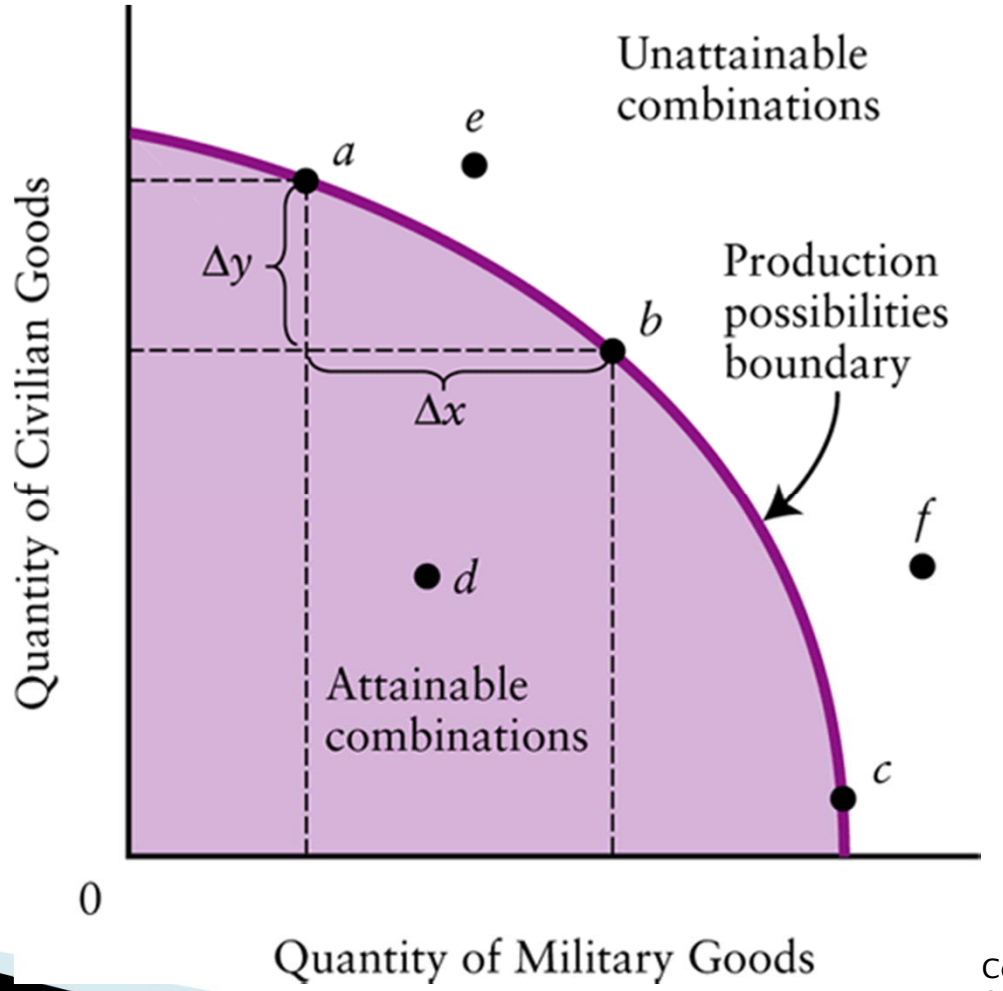
The Production Possibility Frontier



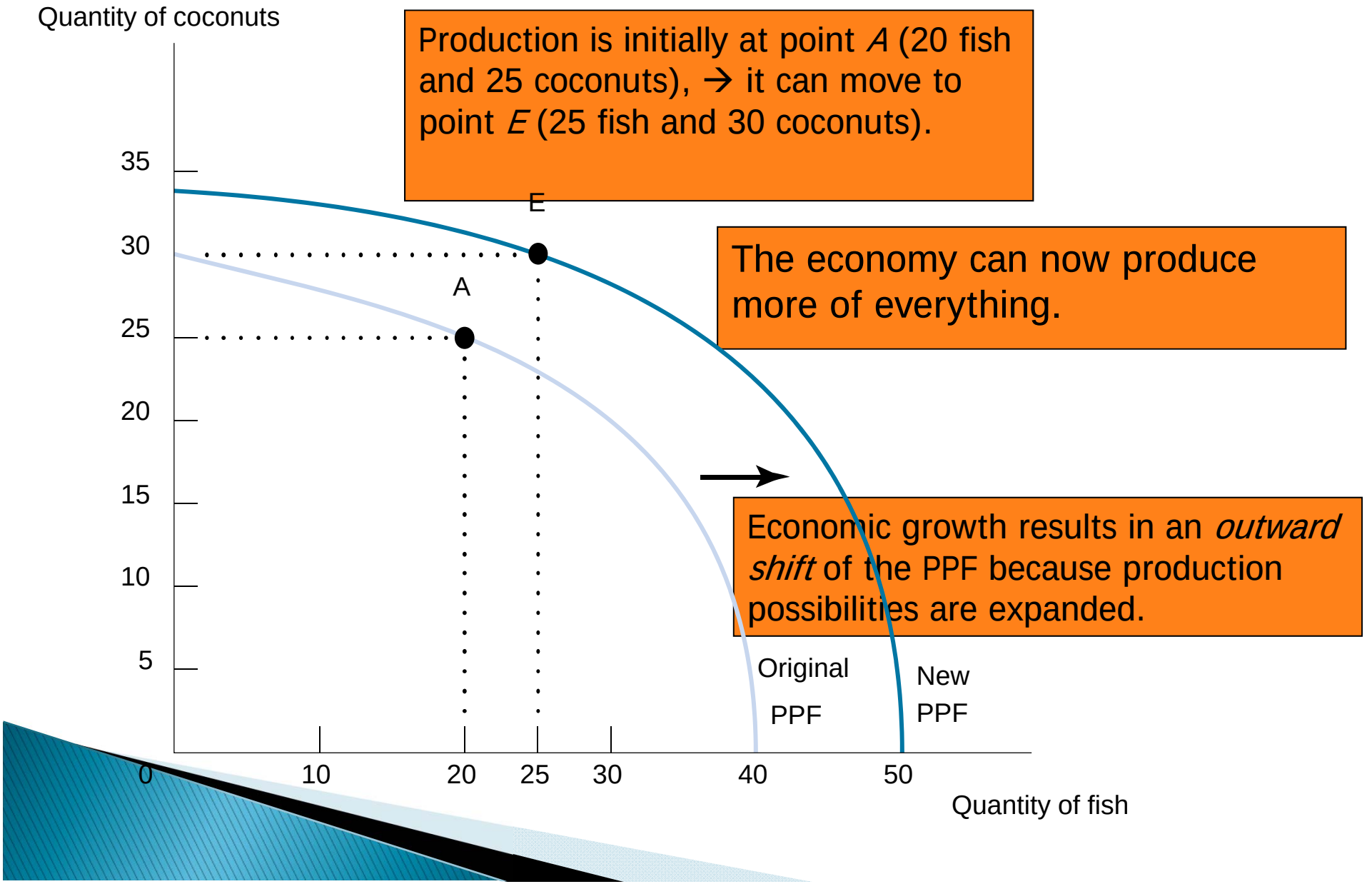
Increasing Opportunity Cost



A Production Possibilities Boundary



Economic Growth

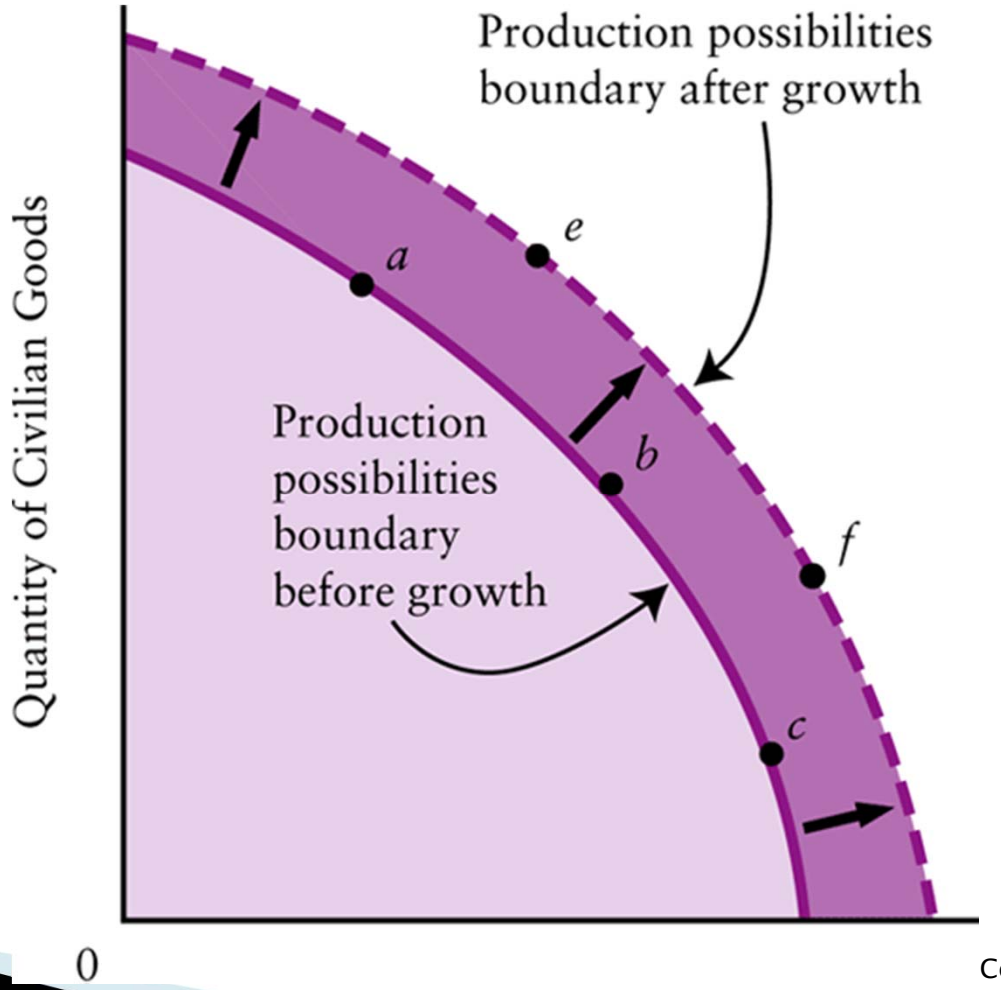


Production is initially at point *A* (20 fish and 25 coconuts), → it can move to point *E* (25 fish and 30 coconuts).

The economy can now produce more of everything.

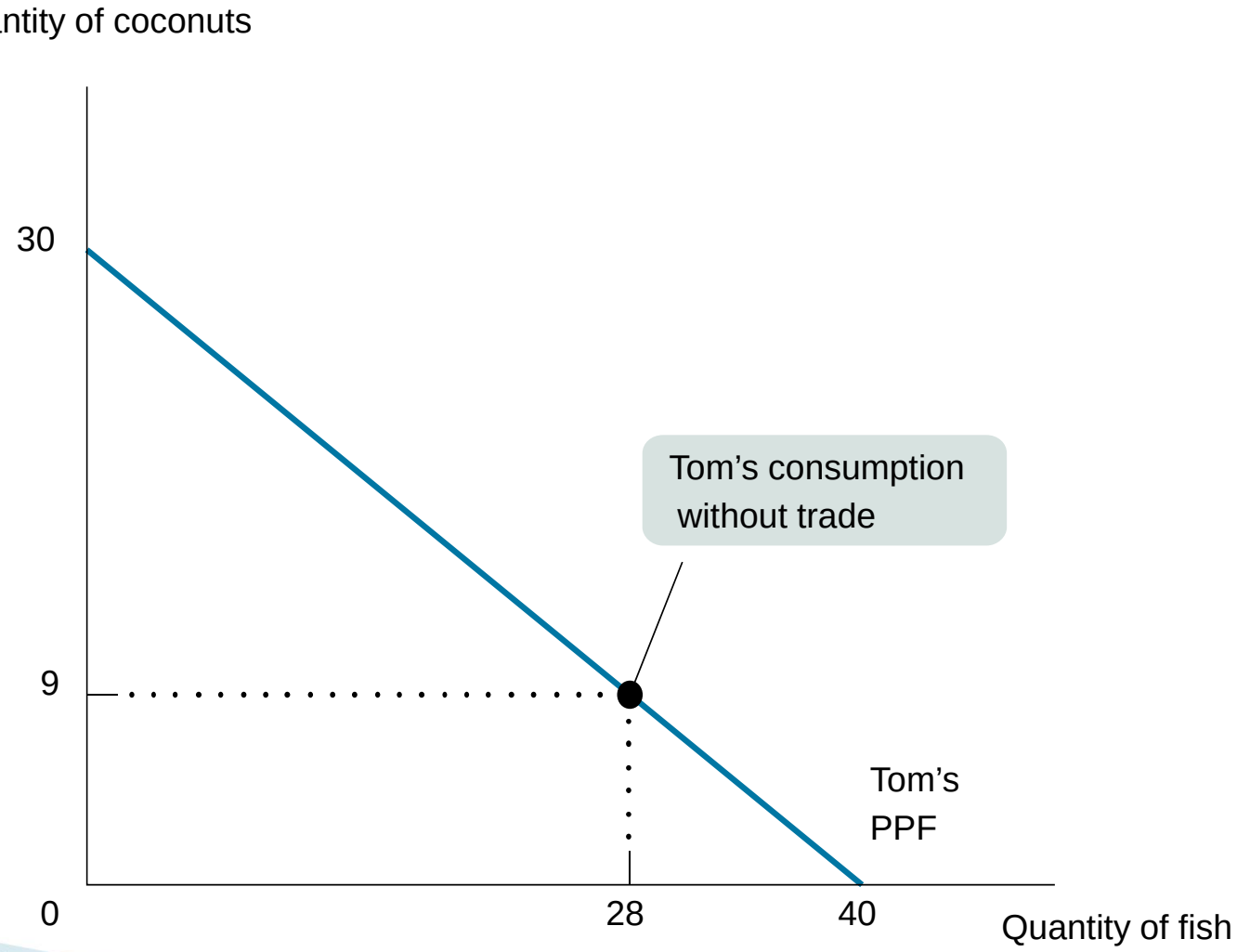
Economic growth results in an *outward shift* of the PPF because production possibilities are expanded.

The Effect of Economic Growth on the Production Possibilities Boundary



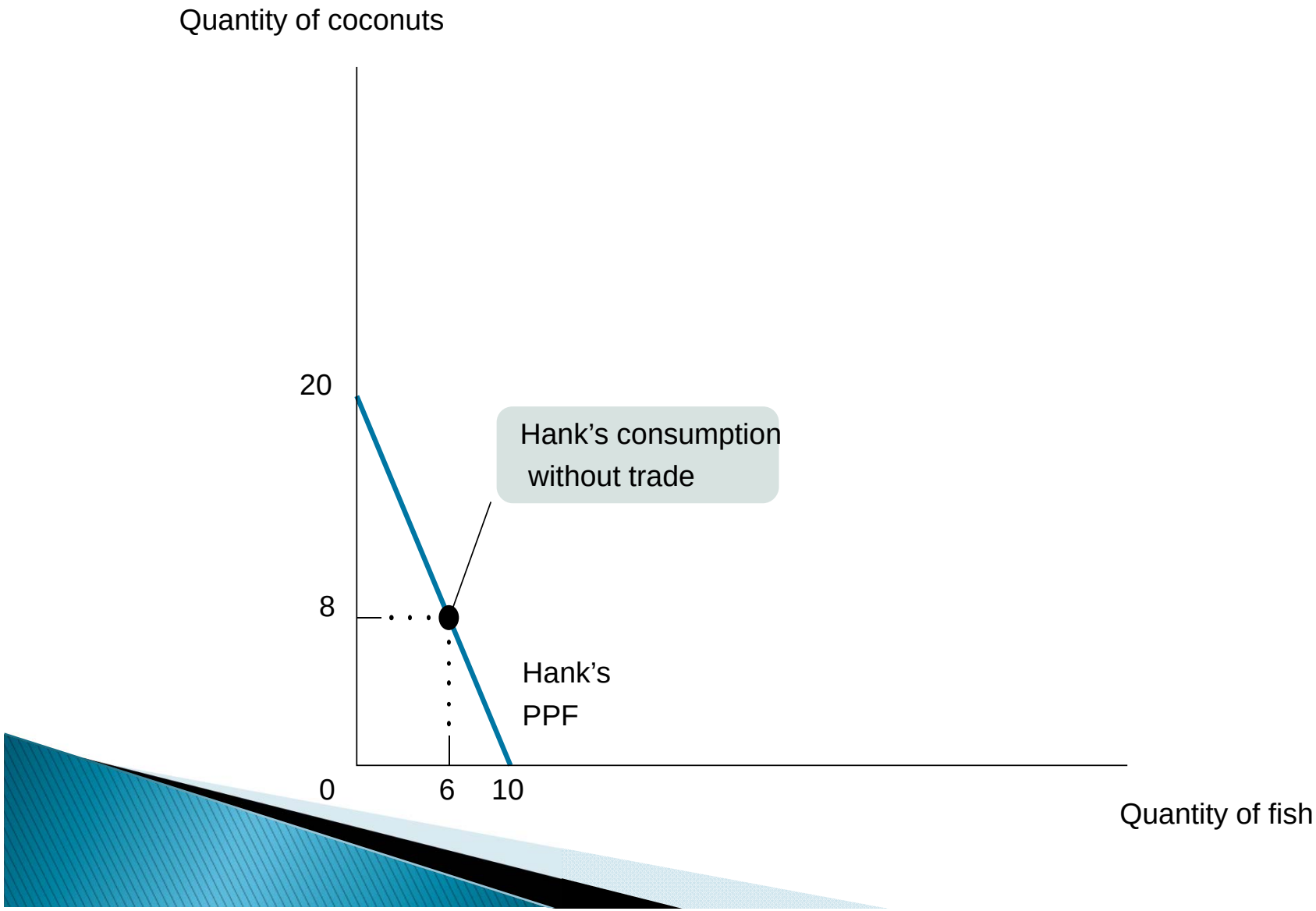
Production Possibilities for Two Castaways

(a) **Tom's Production Possibilities**



Production Possibilities for Two Castaways

(a) **Hank's Production Possibilities**

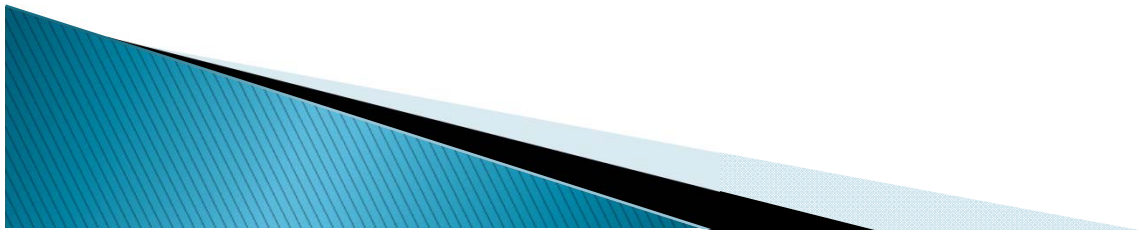


Tom and Hank's Opportunity Costs

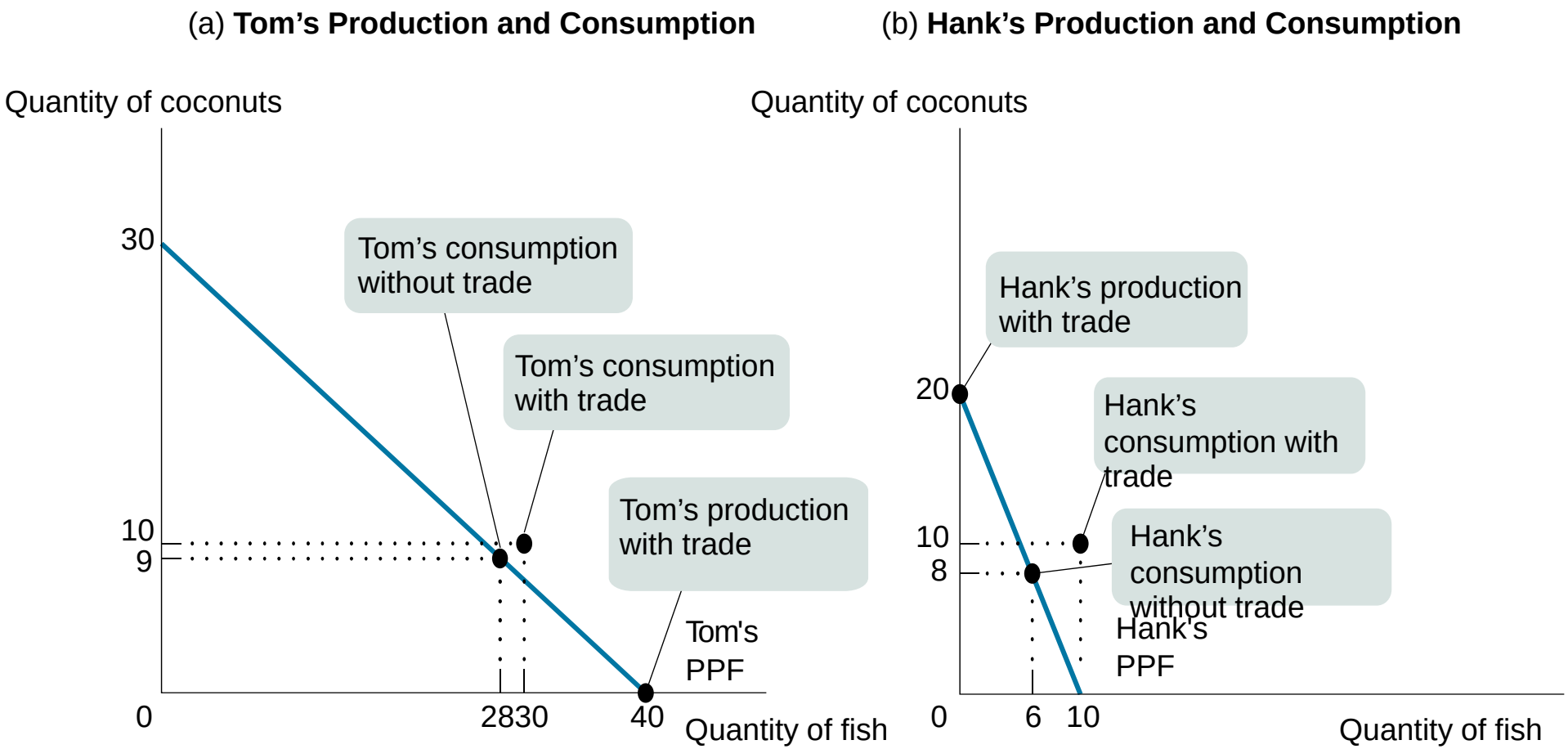
	Tom's Opportunity Cost	**Hank's Opportunity Cost**
One fish	3/4 coconut	2 coconuts
One coconut	4/3 fish	1/2 fish

Specialize and Trade

- Both castaways are better off when they each specialize in what they are good at and trade.
- It's a good idea for Tom to catch the fish for both of them, because his opportunity cost of a fish in terms of coconuts not gathered is only ¾ of a coconut, versus 2 coconuts for Hank.
- Correspondingly, it's a good idea for Hank to gather coconuts for the both of them.



Comparative Advantage and Gains from Trade



How the Castaways Gain from

How the Castaways Gain from Trade

		Without Trade		With Trade		Gains from Trade
		Production	Consumption	Production	Consumption	
Tom	Fish	28	28	40	30	+2
	Coconuts	9	9	0	10	+1
Hank	Fish	6	6	0	10	+4
	Coconuts	8	8	20	10	+2

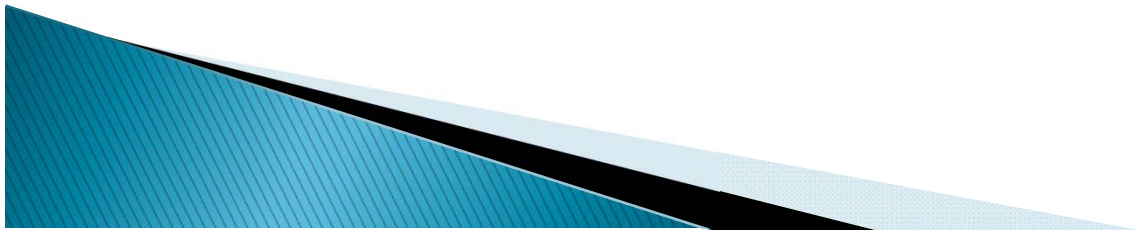
Both Tom and Hank experience gains from trade:

- Tom's consumption of fish increases by two, and his consumption of coconuts increases by one.
- Hank's consumption of fish increases by four, and his consumption of coconuts increases by two.

Comparative vs. absolute advantage

- An individual has a **comparative advantage** in producing a good or service if the opportunity cost of producing the good is lower for that individual than for other people.

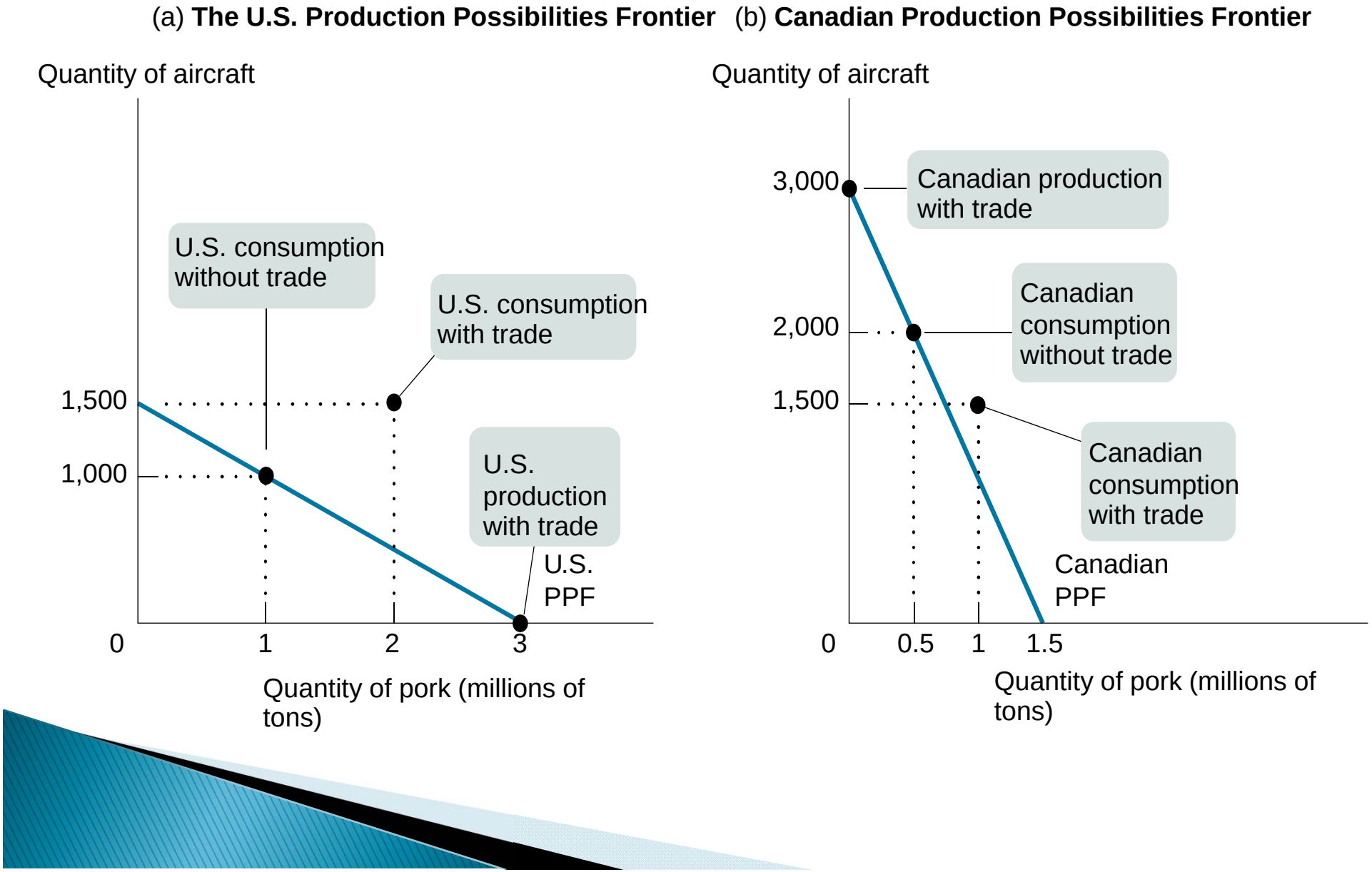
- An individual has an **absolute advantage** in an activity if he or she can do it better than other people. Having an absolute advantage is not the same thing as having a comparative advantage.



Tom vs. Hank – Absolute vs. Comparative

- Tom has an **absolute advantage** in both activities: he can produce more output with a given amount of input (in this case, his time) than Hank.
- But we've just seen that Tom can indeed benefit from a deal with Hank because *comparative*, not *absolute*, advantage is the basis for mutual gain.
- So Hank, despite his absolute disadvantage, even in coconuts, has a comparative advantage in coconut gathering.
- Meanwhile Tom, who can use his time better by catching fish, has a comparative *dis*advantage in coconut-gathering.

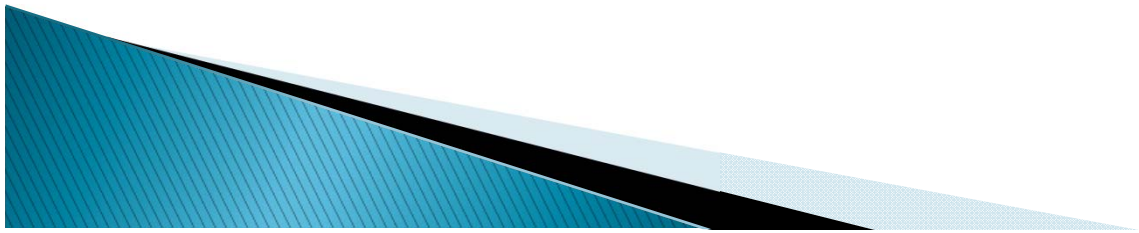
Comparative Advantage and International Trade



Comparative Advantage and International Trade

- Just like the example of Tom and Hank, the US and Canada can both achieve mutual gains from trade.

- If the US concentrates on *producing pork* and ships some of its output to Canada, while Canada concentrates on *aircraft and ships* some of its output to the US, both countries can consume more than if they insisted on being self-sufficient.

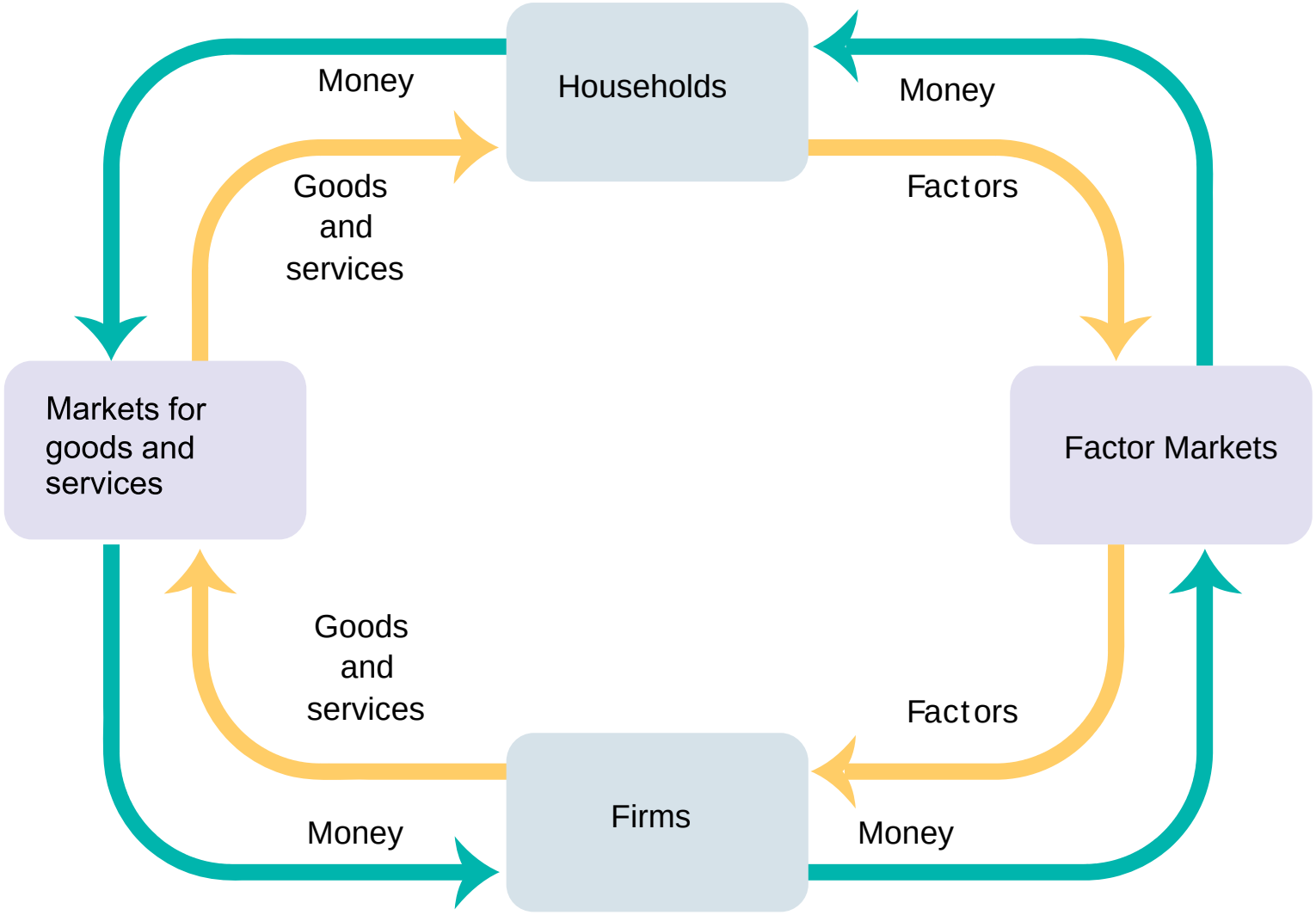


Transactions: The Circular-Flow Diagram

- Trade takes the form of **barter** when people directly exchange goods or services that they have for goods or services that they want.

- The **circular-flow diagram** is a model that represents the transactions in an economy by flows around a circle.

The Circular-Flow Diagram



Circular-Flow of Economic Activities

- A **household** is a person or a group of people that share their income.
- A **firm** is an organization that produces goods and services for sale.
- Firms sell goods and services that they produce to households in **markets for goods and services.**
- Firms buy the resources they need to produce—**factors of production**—in **factor markets.**

The Circular Flow

Individuals own factors of production. They sell the services of these factors to producers in factor markets and receive payment in return.

- The payment becomes their (factor) incomes.

Producers transform factor services into goods and services, which they then sell to individuals in goods markets, receiving payment in return.

- The payment becomes the incomes of producers.

How are Decisions Made?

Maximizing Decisions

- People are maximizers.
- Consumers maximize utility, producers maximize profits.

Marginal Decisions

- All decisions are based on weighing marginal cost against marginal benefit.

The Complexity of Production

Production usually displays two characteristics noted long ago by Adam Smith: specialization and the division of labor.

Specialization is the allocation of different jobs to different people. It is more efficient than self-sufficiency because:

- Individual abilities differ -- comparative advantage.
- Focusing on one activity leads to improvements -- learning by doing.

Division of labor extends the idea of specialization for the production of a single good or service.

Globalization

Underlying modern globalization is the rapid reduction of transportation and communication costs in the last half of the 20th century.

Through globalization, national economies are ever more linked to the global economy.

In this course we will discuss the extent to which the process of globalization changes markets and changes the way government policy can influence economic outcomes.

Markets and Money

Specialization must be accompanied by trade.

Money eliminates the cumbersome system of barter by separating the transactions involved in the exchange of products, thereby facilitating specialization and trade.

Is There an Alternative to the Market Economy?

Types of Economic Systems

There are three pure types of economic systems:

- Traditional
- Command
- Free-Market

In practice, every economy is a mixed economy, in the sense some decisions are made by firms and households and some by the government.

Government in the Modern Mixed Economy

Key government-provided institutions in market economies are private property and freedom of contract.

Governments also intervene to:

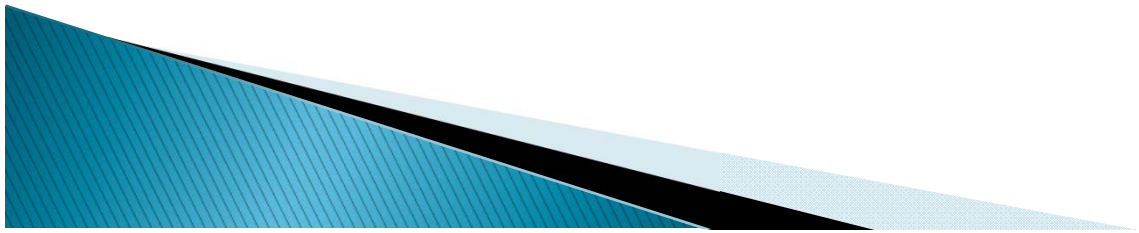
- correct market failures
- provide public goods
- offset the effects of externalities

Markets often work well, but sometimes government policy can improve the outcome for society as a whole.

Positive and Normative Advice

Normative statements depend on value judgments and opinions -- cannot be settled by recourse to facts.

Positive statements do not involve value judgements. They are statements about what is, was, or will be.



Positive and Normative Statements

Positive	Normative
A Raising interest rates encourages people to save.	E People should be encouraged to save.
B High rates of income tax encourage people to evade paying taxes.	F Governments should arrange taxes so that people cannot avoid paying them.
C Lowering the price of tobacco leads people to smoke less.	G The government should raise the tax on tobacco to discourage people from smoking.
D The majority of the population would prefer a policy that reduced unemployment to one that reduced inflation.	H The government ought to be more concerned with reducing unemployment than inflation.

Economic theories

Theories

A theory consists of:

- a set of definitions about variables
  - – endogenous and exogenous variables
- a set of assumptions
  - – motives, physical relations, direction of causation, conditions of application
- a set of predictions (or hypotheses)

Models

The term model is used in several different ways:

- as a synonym for a theory;
- as a specific quantitative formulation of a theory;
- as a specific application of a general theory; and
- as an illustrative abstraction which helps to understand key features of a complex world.

Testing theories

Rejection Versus Confirmation

A hypothesis can be tested and may be rejected by the data. This rejection brings the value of the theory into question.

An alternative is to search for confirming evidence for a theory.

But no matter how unlikely the theory is, some confirming evidence can generally be found.

Statistical Analysis

Statistical analysis is used to test a hypothesis such as "if X increases, then Y will also increase."

Economists are compelled to use millions of "uncontrolled" experiments that are going on every day in the economy.

These activities can be observed and recorded continuously, producing a mass of data.

The analysis of such data requires the use of appropriate -- and often quite complex -- statistical techniques.

Correlation Versus Causation

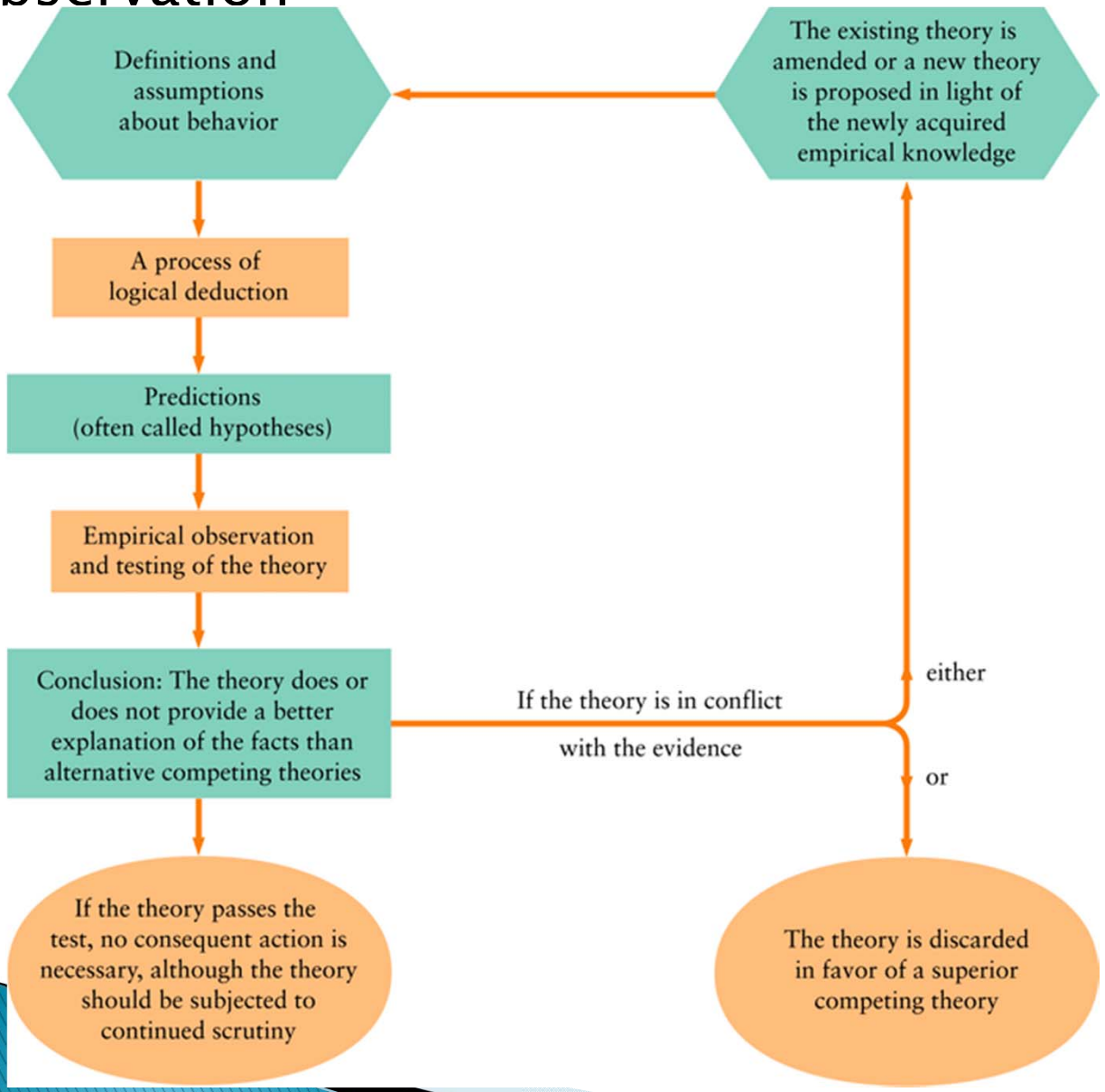
Positive correlation means only that *X* and *Y* move together.

Negative correlation means that *X* and *Y* move in opposite directions.

But *X* and *Y* may not be causally related. Or they may be related in the opposite way to what is expected -- reverse causality.

Most economic predictions attempt to establish causality. Statistical tests often attempt to distinguish between correlation and causality.

The Interaction Between Theory and Empirical Observation



Graphing economic theories

A functional relation can be expressed:

- in a verbal statement
- in a numerical schedule (a table)
- in a mathematical equation
- in a graph

Functions

Consider a relationship between a household's annual income, Y, and its total consumption, C.

We use a symbol to express the dependence of one variable on another.

$$C = f(Y)$$

"C is a function of Y" -- we also say "the amount of consumption expenditure depends upon the household's income."

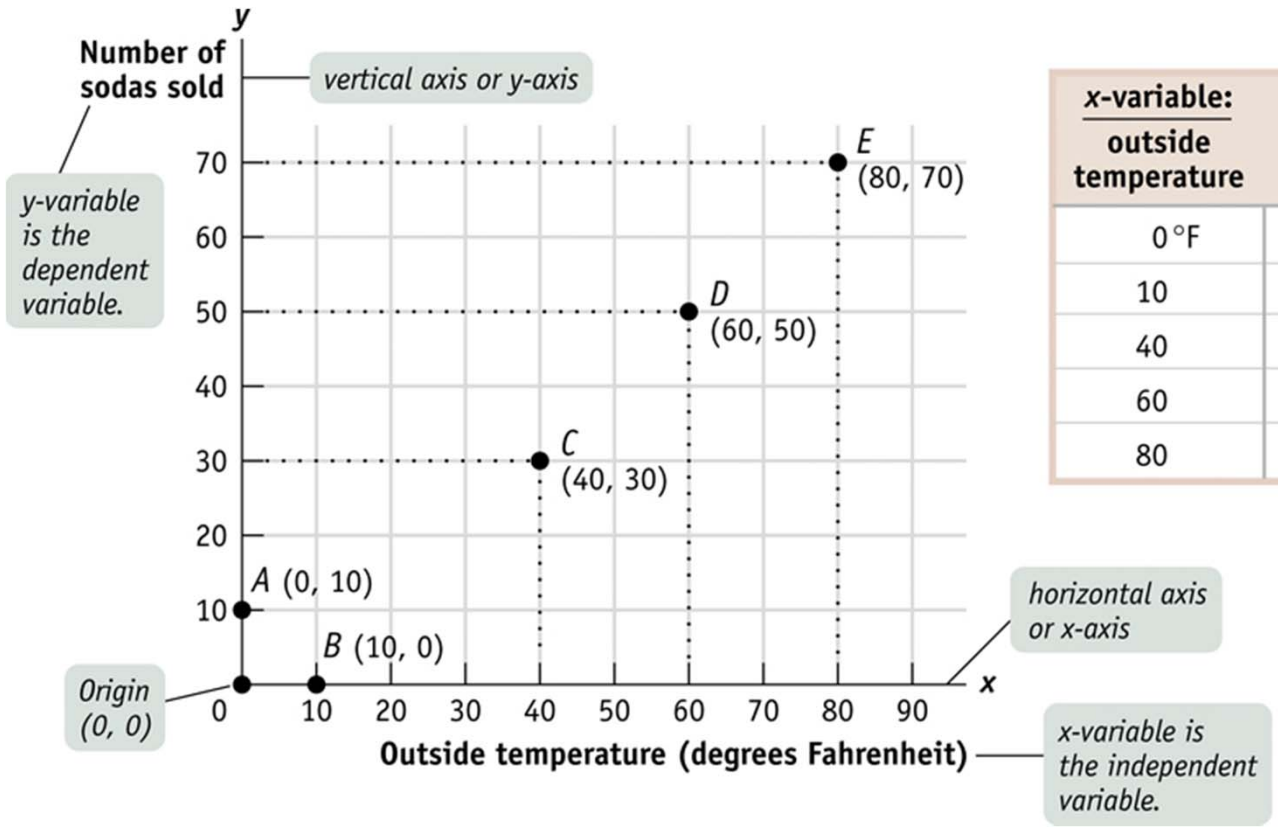
Graphing Functional Relations

The relationship between two variables may be positive or negative.

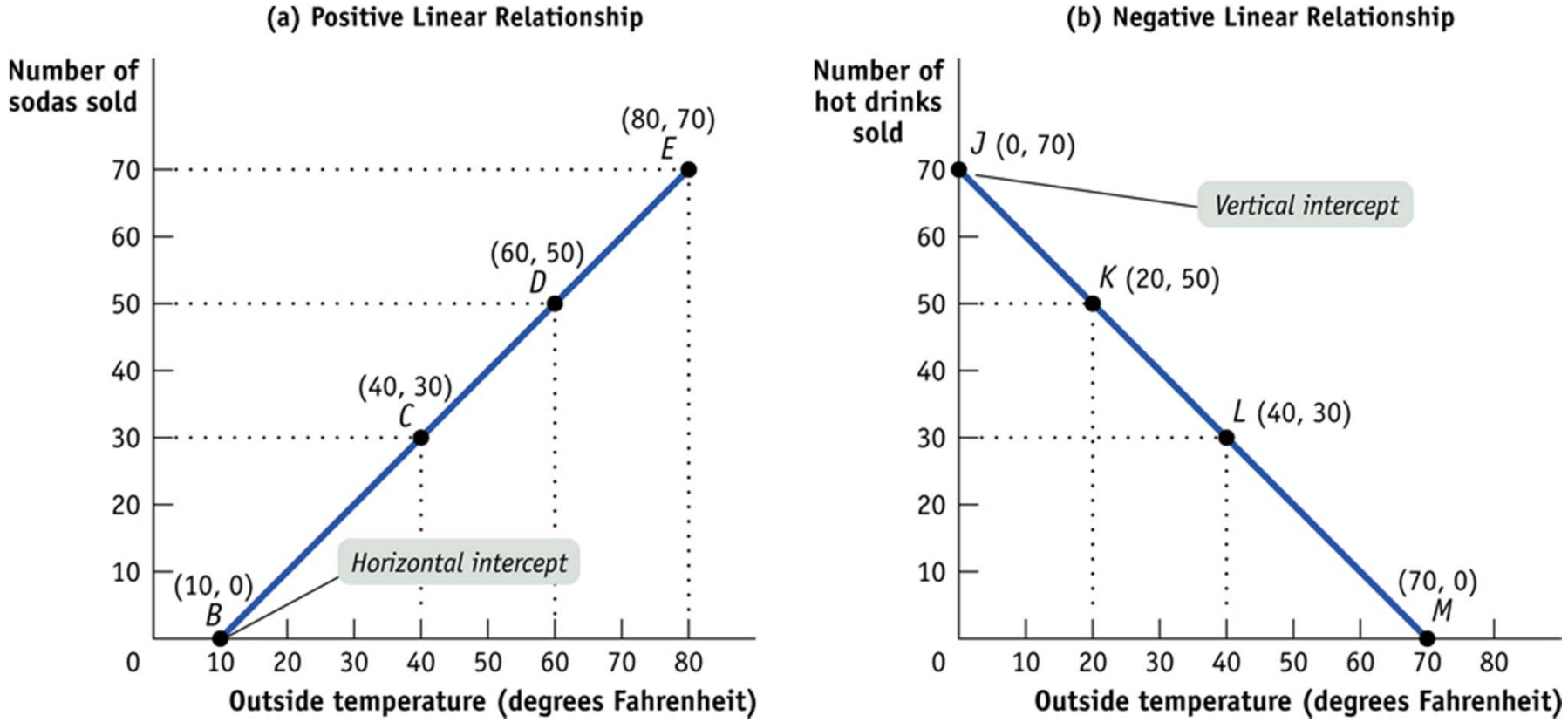
If the graphs of these relationships are straight lines, the variables are linearly related to each other.

Otherwise, variables are said to be non-linearly related.

Two variable graphs

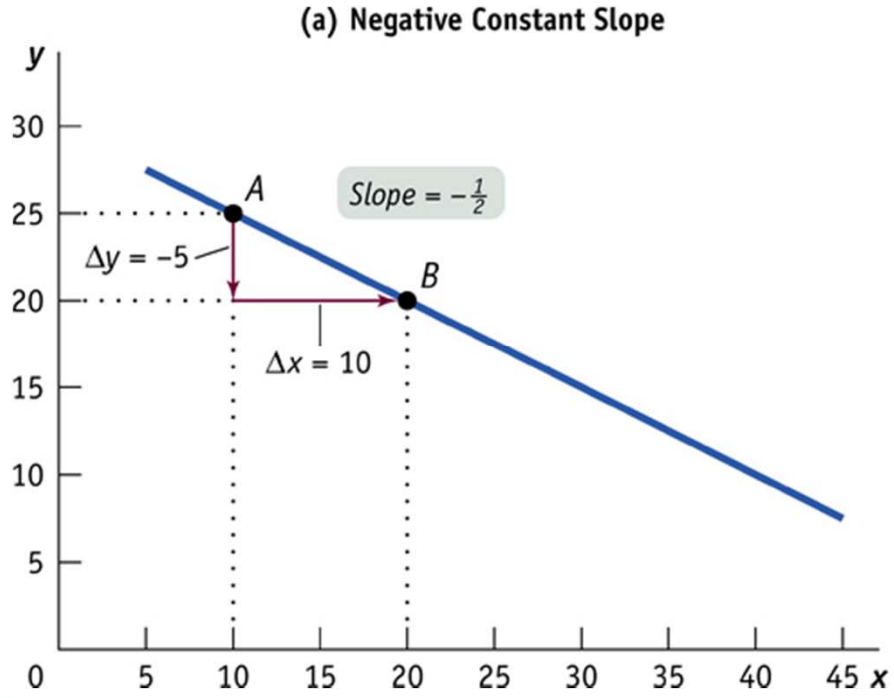


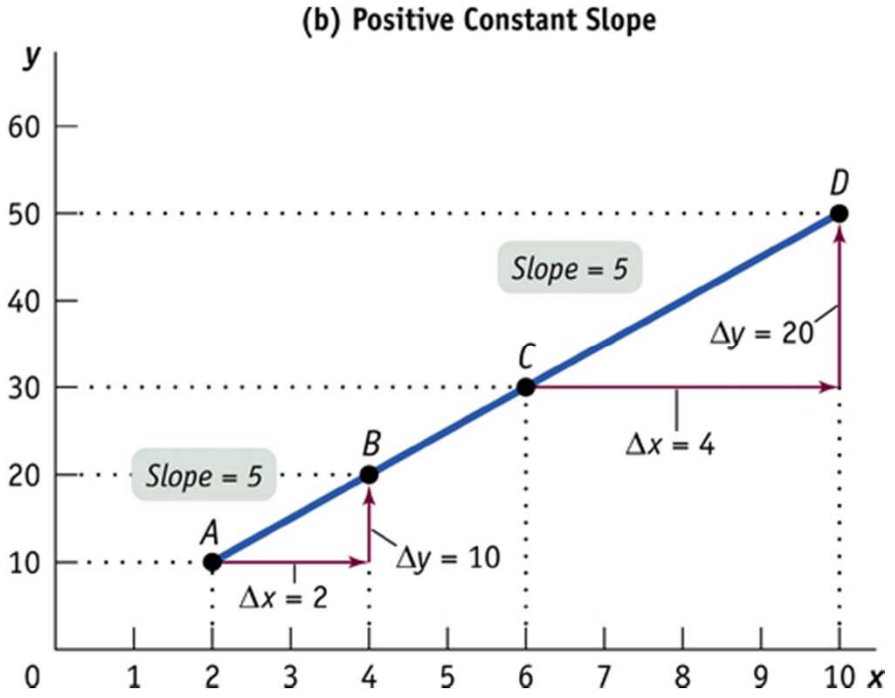
x-variable: outside temperature	y-variable: number of sodas sold	Point
0 °F	10	*A*
10	0	*B*
40	30	*C*
60	50	*D*
80	70	*E*


(a) Positive Linear Relationship
Number of sodas sold
70
60
50
40
30
20
10
0
10
20
30
40
50
60
70
80
(80, 70)
E
(60, 50)
D
(40, 30)
C
(10, 0)
B
Horizontal intercept
Outside temperature (degrees Fahrenheit)
(b) Negative Linear Relationship
Number of hot drinks sold
J (0, 70)
Vertical intercept
K (20, 50)
L (40, 30)
(70, 0)
M
Outside temperature (degrees Fahrenheit)

The slope of a Linear Curve

$$\text{Slope} = \frac{\Delta y}{\Delta x}$$

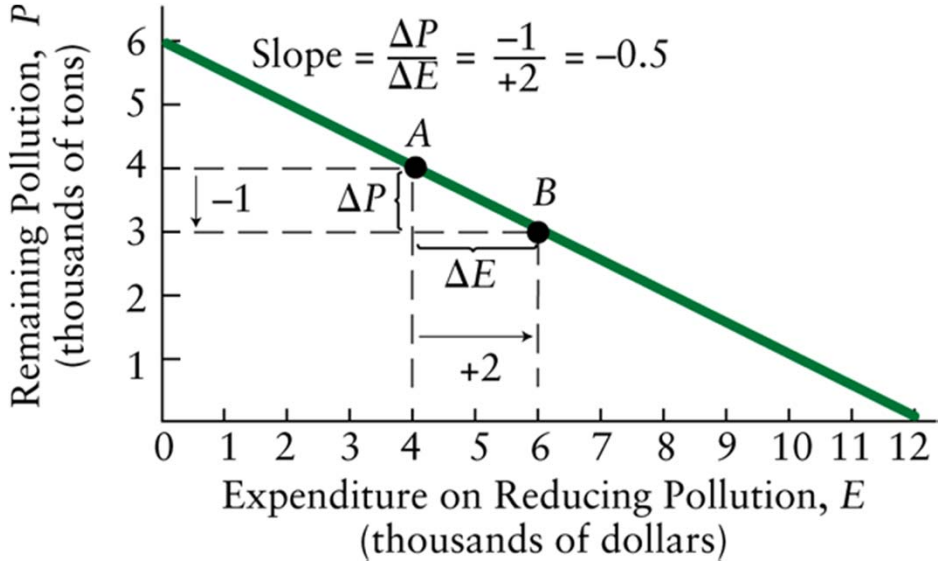




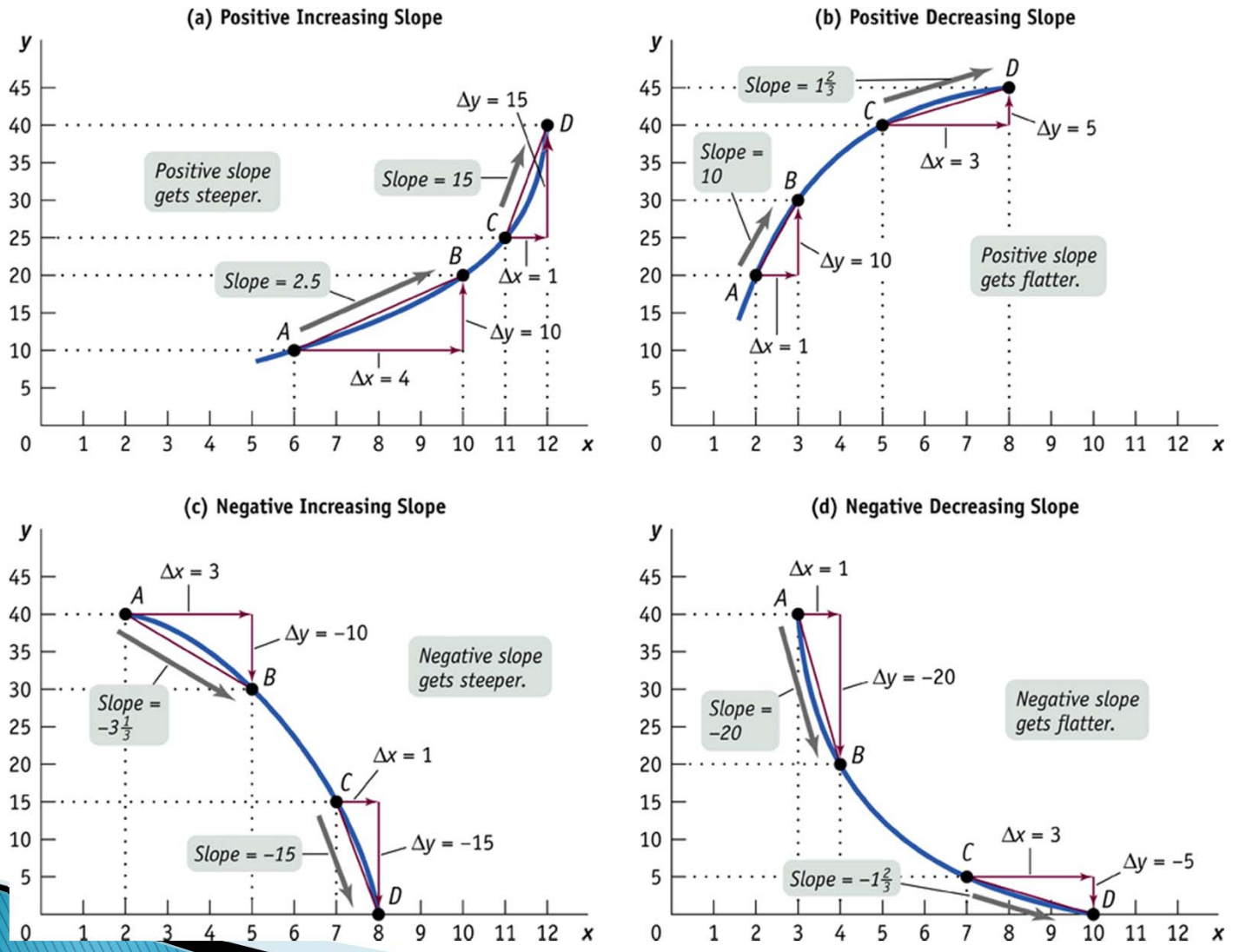
Example
Linear Pollution Reduction

Let ***X*** be the variable measured on the horizontal axis and ***Y*** be the variable measured on the vertical axis.

The slope of a straight line is then $\Delta Y/\Delta X$.

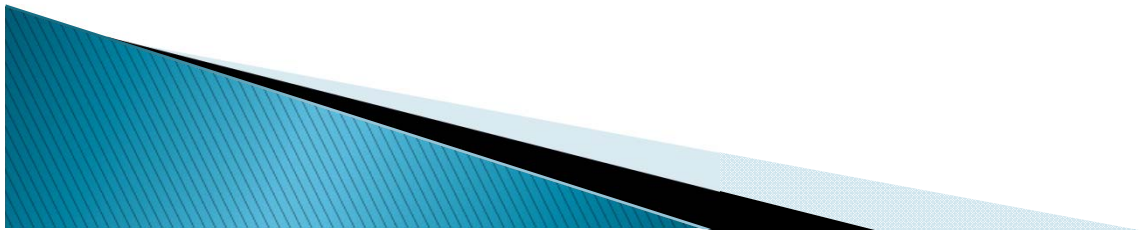


The Slope of a nonlinear curve

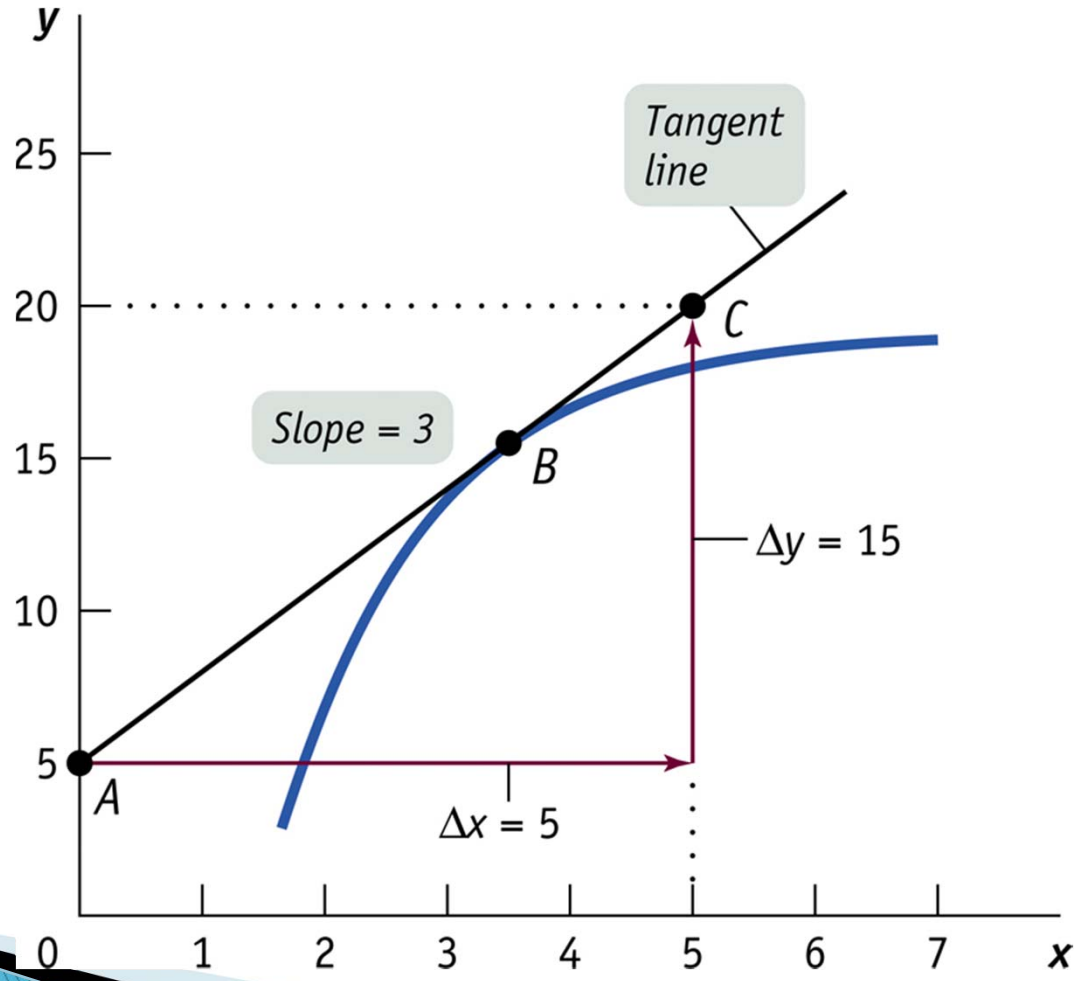


Calculating the slope along a nonlinear curve

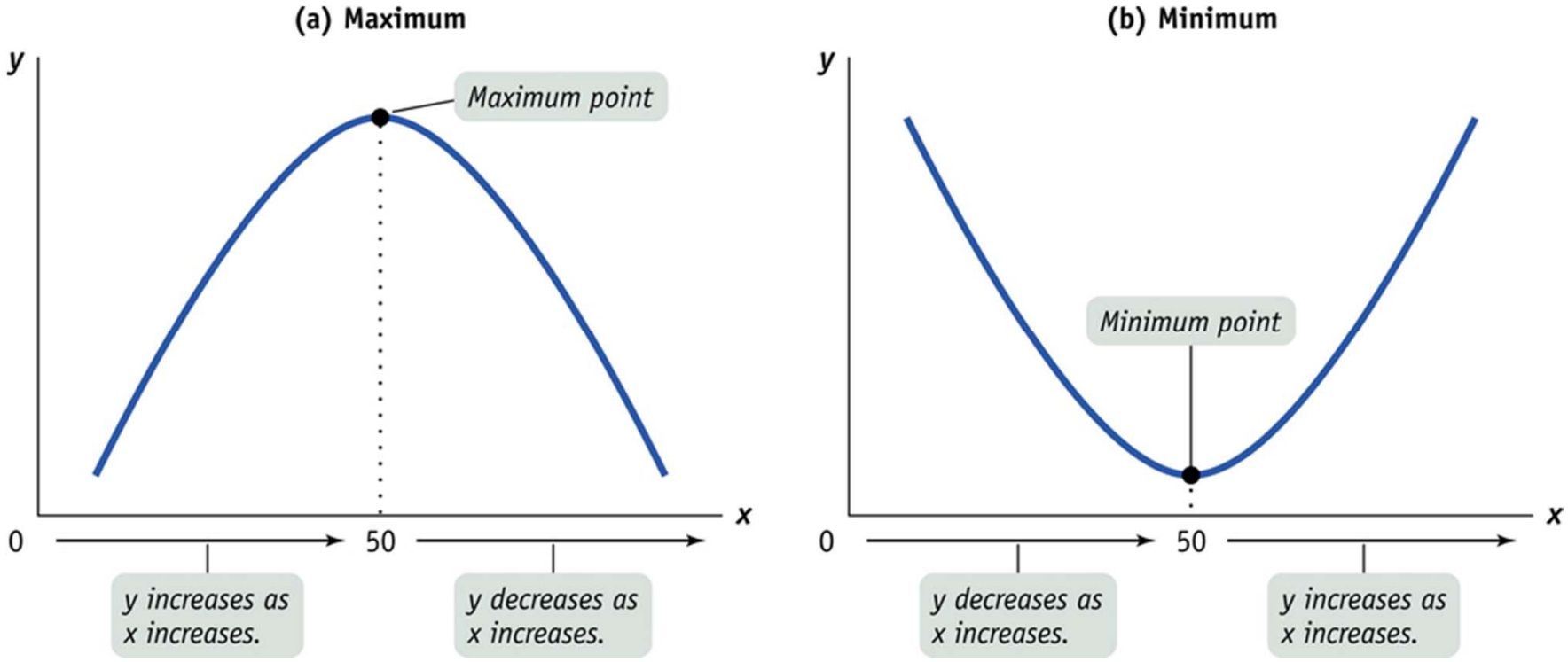
- The Arc Method of calculating the slope
- The Point Method of calculating the slope



The Point Method of calculating the slope



Maximum and Minimum points



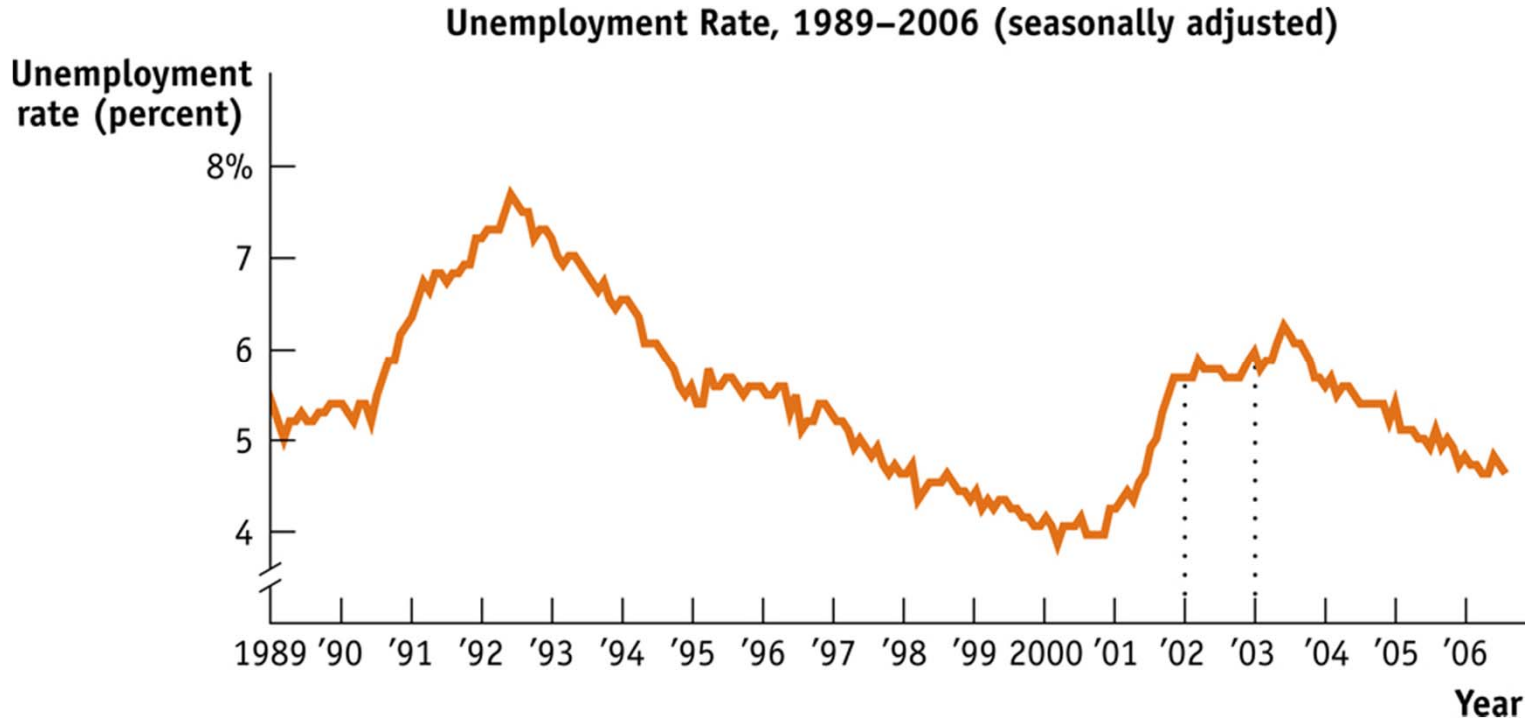
Economic data

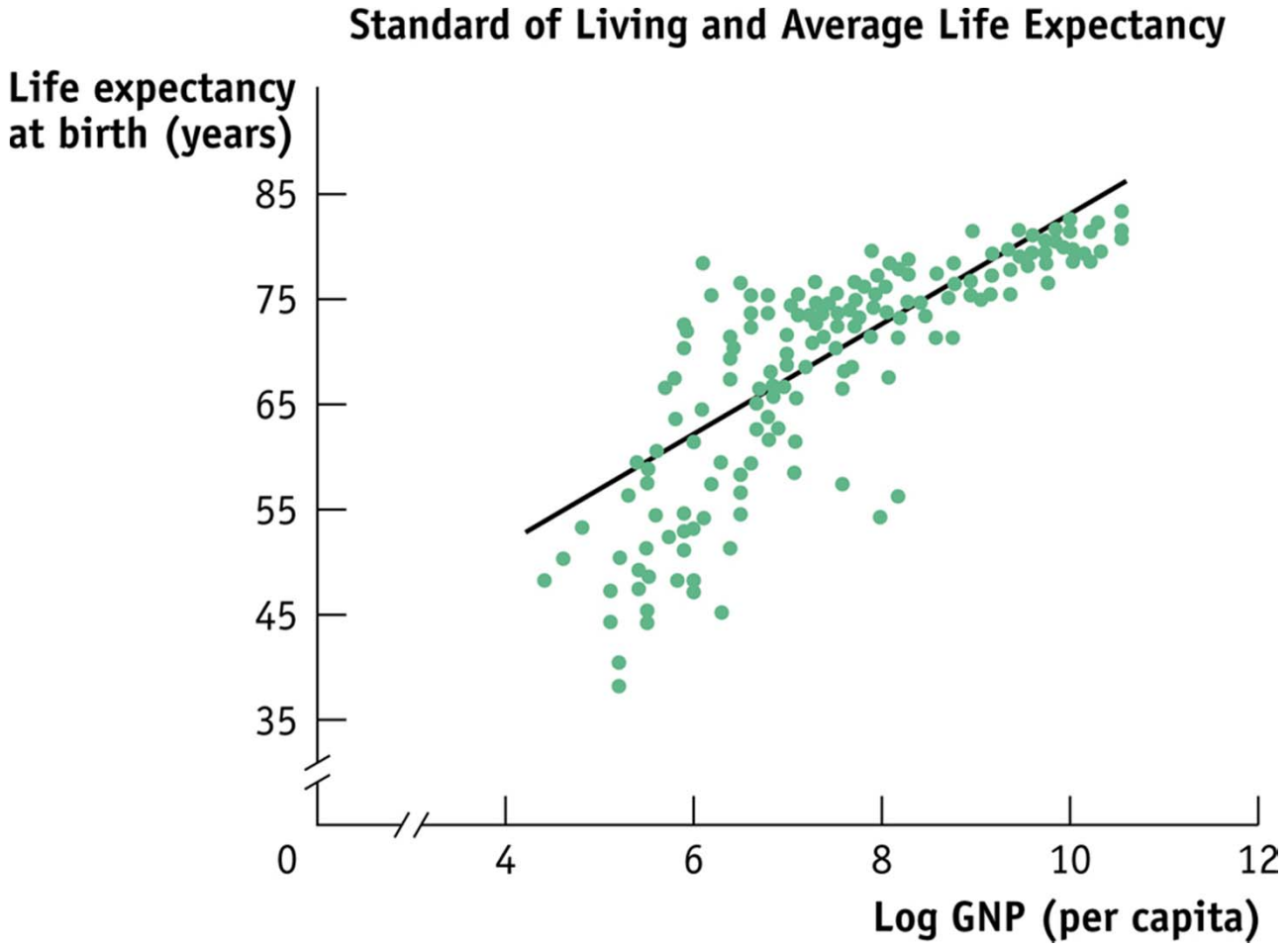
Graphing Economic Data

Economic variables usually come in two basic forms:

- Cross-sectional data
- Time-series data

A scatter diagram is a useful and common way of looking at the relationship between two variables.


Unemployment Rate, 1989–2006 (seasonally adjusted)
Unemployment rate (percent)
8%
7
6
5
4
1989 '90 '91 '92 '93 '94 '95 '96 '97 '98 '99 2000 '01 '02 '03 '04 '05 '06
Year


Standard of Living and Average Life Expectancy
Life expectancy at birth (years)
85
75
65
55
45
35
0
4
6
8
10
12
Log GNP (per capita)

Source:

- Lipsey, Regan, and Storer (2008)
- Krugman and Wells (2008)